Automating Success

Transforming odd-form into a strategic advantage

Evolving to meet contemporary production challenges

For electronics manufacturers, maintaining a highly efficient production model is the key to maximizing productivity. In today’s market landscape, products are becoming more complex with shorter time-to-market requirements and fluctuating labor rates that are forcing manufacturers around the world to rethink traditional approaches. These new challenges have a significant impact on end-of-line odd-form assembly processes, which must be modernized in order to sustain margins and profitability.

Automating back-end assembly for greater returns

Manual assembly processes very often act as assembly line bottlenecks which inhibit productivity while driving up labor and rework costs. Alternatively, automation of these processes can help manufacturers achieve superior throughput, quality, and repeatability – all at a lower cost and in a fraction of the floor space.

Universal Instruments’ odd-form platform solutions deliver these advantages while offering the flexibility to quickly adapt to new odd-form or surface mount challenges, as well as the scalability to meet higher volume requirements.

Proven, versatile odd-form automation solutions

Backed by the most complete complement of tooling, software, and expertise, Universal Instruments platforms are well-equipped to handle any component you’re asked to place. Our years of implementing odd-form solutions on a standard surface mount platform began with our industry-standard GSM² Platform, and continues today with the best-in-class capabilities of our Fuzion®, Genesis, and Advantis® Platforms.

Any application, any Universal platform

Configurable to grow with your business – that’s the beauty of the platform. By partnering with our Odd-Form Applications team, you’ll get the most out of your new or legacy Universal equipment. Regardless of your platform vintage, we have the experience and know-how to evolve your manual assembly challenges into efficient and repeatable automated processes.

- From GSM to Fuzion, we design and support applications for all platforms
- Ready to automate? Our experts will provide a free applications review.
- We evaluate the entire application: from component packaging and feeding solutions to placement tooling and software

Leverage your platform potential for maximum ROI

Take full advantage of the capabilities of your Universal assets to get the most from your investment and production model. Reduce costs while improving productivity, yields, and customer satisfaction to strengthen your bottom line.

- Reduce labor, scrap, and rework costs
- Improve first-pass yield
- Shorten time to market
- Improve inventory turns with consistent production rates
- Increase production volumes with minimal incremental cost
Transforming odd-form into a strategic advantage

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Optimized for today’s growth markets

A fast-moving electronics landscape requires a solution that can easily transition from one product to the next. Universal’s SM odd-form solutions are ideally suited to help manufacturers excel across a diverse range of unique market challenges.

Place a full array of odd-form components

Take on any odd-form component with the same confidence as a standard surface mount component. Place these components quickly and accurately with a sustained production flow by leveraging the most complete odd-form solutions available.

Versatile tooling solutions

Universal offers the fullest complement of component handling and input types in the industry, with a wide variety of standard tooling, and custom design and implementation services for all your manufacturing requirements.

Tape Feeders
- 8-120mm tape widths, multi-pitch
- Pocket depths up to 25.4mm (1”)
- 7”-22” reel holder options
- Continuous splice capability

Tray Feeders
- Handle JEDEC and non-standard vacuum-formed trays
- Random-access and direct-pitch tray feeding
- Matrix tray feeders can support parts up to 40mm tall
- Tray consultation and design services available

Tube and Track Feeders
- From NPI/low-volume to high-volume options
- Multi-input track – tubes with parts to 28mm tall
- Multi-tube, single-input ejects empty tubes while picking
- Four-lane track feeder supports up to four part numbers

Board Feeders
- Most economical form of bulk component handling and presentation
- “Go green” – no component packaging and no waste from packaging materials

Odd-Form Nozzles and Grippers
- Full range of nozzles for odd-form and large parts
- Industry-leading custom design/development services
- Adjustable gripper handles multiple component types/sizes. Kits include tooling jaws, spacers, pushers.

Board Supports
- Compliant board support pins allow for height adjustment and offer a magnetic base to easily and securely mount
- Pneumatic support options for all Universal SM platforms
- Custom board support options available
Process Versatility

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Tube and Track Feeders
- From NPI/low-volume to high-volume options
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- Multi-tube, single-input ejects empty tubes while picking
- Four-lane track feeder supports up to four part numbers

Bowl Feeders
- Most economical form of bulk component handling and presentation
- “Go green” – no component packaging and no waste from packaging materials

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- Full range of nozzles for odd-form and large parts
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LED Optimized

Holistic solutions for low- to high-volume LED production

For years, our experts have worked closely with customers and LED component manufacturers to create the complete LED solution. The latest generation of LEDs offers new challenges for lighting manufacturers, for which Universal has developed solutions for all Universal pick and place equipment.

LED Nozzles

Universal offers a full array of LED nozzles for 30-, 7- and 4-spindle heads. Whether you're picking and placing a silicone-domed, flat-type, or other LED variant, the optimally designed nozzle is available. Each nozzle utilizes the best material and tip geometry to handle the unique characteristics of a given LED.

LED Feeders

Silicon-encapsulated LEDs can present issues during the pick process with a tendency to stick to both the tape pocket and the Mylar tape cover. Universal offers specialized LED feeders, which ensure proper LED positioning and eliminate Mylar-related failures for superior pick performance.

LED Board Supports

Many LED printed circuit boards require additional board support to guarantee peak performance during placement of LEDs. Universal's LED board support options are suited to varying application demands, and include automated pneumatic hits, and custom-designed solutions.

LED Software

For exceptional LED performance on 30-spindle placement heads, Universal's LED software upgrade incorporates specialized machine parameters to enhance placement performance. The LED software upgrade leverages a combination of special timing, air kiss, and variable placement speeds to handle the latest-generation LEDs.

LED Optimized

Extend your odd-form capabilities

Universal Instruments platforms excel at standard multifunction requirements with modular add-ons to meet your specific challenges. Upgrade your equipment for ultimate odd-form performance.

- Lightning® head performance upgrades
- Adjustable gripper kits
- Full range of odd-form nozzles and grippers
- Full range of standard, odd-form and legacy feeders
- Odd-form cameras with wide field of view
- Platform software upgrades
- NPI software tools
- Board supports

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Lightning® head performance upgrades

- Achieve maximum performance and reliability from your existing Lightning head with the latest hardware
- Upgrades include new spindle valves, venturis, pca boards, and more

Full range of odd-form nozzles and grippers

- Handle a full complement of odd-form and large parts
- Industry-leading custom nozzle/gripper design and development services for all odd-form components
- Available for new or vintage placement heads

Adjustable gripper kits

- Available for 4- and 7-spindle placement heads
- Handle a variety of components with a single gripper
- Complete with versatile tooling and detailed instructions for ease of use and best practice

Platform software upgrades

- Upgrade to the latest level of machine software available for your machine
- Take advantage of new standard and odd-form features built in later software versions

Full range of standard, odd-form and legacy feeders

- Tape, strip, tube, tray, bowl, G Pax, radial, label options
- Adjustable track feeder handles multiple component types at one time; components up to 50 x 127mm
- Deep pocket tape feeders from 24 – 104mm

Odd-form cameras with wide field of view

- Expand your component range with a wide field of view camera upgrade
- Large field-of-view optics (single FoV up to 55mm, multiple FoV up to 150mm)

NPI software tools

- Generate balanced and optimized products
- Minimize changeovers with grouped setups
- Debug process problems online
- Achieve a production-ready first-pass yield

Board supports

- Custom and standard board supports available for any odd-form application
- Several pneumatic board options available
- Available as kits or as individual modules

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SM Odd-Form Solutions

odd-form assembly made standard